Thorup 1999-0467A

IN THE CLAIMS:

1. (Previously Presented) A method for controlling traffic flow in a network, comprising:

generating a set of control weights relating to network traffic flow based on a best-neighbor approach; and

controlling traffic flow in the network using the set of control weights.

2. (Currently Amended) The method of claim 1, wherein the best-neighbor approach is a modified ~~the~~ a best-neighbor approach that uses at least an anti-cycling technique.

3. (Previously Presented) The method of claim 1, wherein the best-neighbor approach is a modified best-neighbor approach that uses an impatience technique.

4. (Previously Presented) The method of claim 1, wherein generating the set of control weights is further based on a diversification process.

5. (Original) The method of claim 4, wherein the diversification process is a limited-range diversification process.

6. (Original) The method of claim 2, wherein the best-neighbor approach is a modified the best-neighbor approach that uses at least an impatience technique.

7. (Original) The method of claim 6, wherein generating the set of control weights is further based on at least a diversification process.

8. (Original) The method of claim 7, wherein the diversification process is a limited-range diversification process.

9. (Original) The method of claim 6, wherein generating a set of control weights is further based on a piece-wise linear cost function.

10. (Previously Presented) The method of claim 3, wherein generating the set of control weights includes:

evaluating a first traffic cost based an existing set of weights;

generating a computed set of weights based on the existing set of weights and the best-neighbor approach;

evaluating a second traffic cost relative to the computed set of weights;

if the second traffic cost is lower than the first traffic cost, declaring the computed set of weights to be the existing set of weights and the second traffic cost to be the first traffic cost;

if a preselected cost criterion has not been met, returning to said step of generating; and

if the preselected cost criterion has been met, setting weights to correspond to the computed set of weights.

11. (Original) The method of claim 10, wherein generating the set of second weights is further based on at least a rarefied neighborhood search.

12. (Original) The method of claim 10, wherein generating the set of second weights is further based on a dynamic graph technique.

13. (Previously Presented) An apparatus for controlling traffic flow in a network, comprising:

a weight device that generates a set of control weights, one for each link of the network, based on a best-neighbor approach; and

at least one network node that receives one or more control weights of the set of control weights, and controls traffic flow in the network based at least the one or more control weights.

14. (Original) The method of claim 13, wherein best-neighbor approach is a modified best-neighbor approach that uses at least one of an anti-cycling mechanism and an impatience mechanism.

15. (Original) The apparatus of claim 14, wherein best-neighbor approach is a modified best-neighbor approach that uses at least an anti-cycling mechanism and an impatience mechanism.

16. (Original) The apparatus of claim 13, wherein the weight device includes a diversification device that performs at least one diversification process.

17. (Original) The apparatus of claim 16, wherein the diversification process is a limited-range diversification process.

18. (Original) The apparatus of claim 15, wherein the weight device includes a diversification device that performs at least one diversification process.

19. (Original) The apparatus of claim 16, wherein the weight device includes a cost calculator that calculates at least the cost of at least one control weight of the set of control weights based on a piece-wise linear cost function having two or more segments.

20. (Cancel) .

21. (Currently Amended) A method for controlling traffic flow in a network having N interconnected links, where N is an integer, comprising:

selecting a control weight for each of said N links by considering an N-dimensional cost function of traffic load on each of said N links that is related to said weights, said selecting being adapted to accept a set of control weights that corresponds to a point on said multidimensional cost function that is or approaches a local minimum, where said point is selected by means of a best-neighbor algorithm; and

controlling traffic flow in the network using the set of control weights.

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22. (Cancel) .

23. (Previously Presented) [The method of claim 21] A method for controlling traffic flow in a network having N interconnected links, where N is an integer, comprising:

selecting a control weight for each of said N links by considering an N-dimensional cost function of traffic load on each of said N links that is related to said weights, said selecting being adapted to accept a set of control weights that corresponds to a point on said multidimensional cost function that is or approaches a local minimum where the point is selected by cycling through a local search technique and a heuristic technique that moves a potential solution point to outside a neighborhood of the local search; and

controlling traffic flow in the network using the set of control weights.

24. (Previously Presented) The method of claim 21 where the cost function is piecewise linear.

25. (Previously Presented) The method of claim 21 where the cost function is convex.

26. (Previously Presented) The method of claim 21 where the a second derivative of the cost function is non-negative.

27. (Currently Amended) The method of claim 23, wherein the heuristic ~~diversification process~~ is a limited-range diversification process.